
Skills expectations of library graduates

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BIOGRAPHICAL NOTE

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ABSTRACT

A survey was undertaken of graduates from various library courses at QUT. The instrument was developed in consultation with Schools offering similar courses nationally, so that it could subsequently be used for national comparison.

The survey was structured to take account of knowledge, skills, and competencies explicated in Australian documents that provide competency guidance in library and information management areas. It was also designed to enable comparison with a previously published survey analysis.

The survey identifies 189 skills grouped into 9 categories: Collection building and management; Communication; Facilities & equipment; Information organisation; Information services; Information systems; Management; Marketing; and Research. Response rate to the survey was low, but nevertheless provided useful comparison between the expectations of graduates working in different sectors, for different time periods.

Findings for respondents as a group, show that each of the top 5 ranked skills were in the Information Services category, as were 7 of the top 10 ranked skills. There were marked differences between the rankings assigned by this group and those of a similar North American study.

Tables showing the ranking of skills expectations are provided. Comments are made about curriculum developments that are influenced by these data.

INTRODUCTION

The changing nature of the work of librarians has been extensively debated in the literature. Analysis has included detailed description of elements of professional work (Sreenivasulu, 2000), investigation of employment options through advertisements (Willard & Mychalyn, 1998), and commentary on the role and naming of information professionals (Noble, 1998).

Many writers have defended the role of the librarian as information intermediary in a digital environment while qualifying their support with statements about the need for librarians to embrace the technological support mechanisms, and promote their information skills in corporate settings. (Abbott, 1998; Bale, 2000; Zipperer, 1998)

Issues such as these, have an influence on the philosophy for acculturation of graduates into the work environment, and the curriculum for supporting the preparation process. Many skills have been identified to prepare incoming professionals for such tasks as:

- End user instruction
- Database design
- Electronic reference service
- Metadata management
- Digitisation project management

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- Web site evaluation
 - Business analysis
 - Knowledge management

Some of these capabilities are a renewed conceptualisation of responsibilities that have always formed part of the library professional role. Others require knowledge and competency that requires reformulation of the framework of existing curricula.

One approach to identifying requirements has been to develop vocational competency frameworks that identify specific abilities required at different levels of application. In Australia, for example these have been produced in the library, and archives and records management sectors (Arts Training Australia 1995; Business Training Services Australia Ltd., 1997).

However, there has been unease in a number of quarters, about the influence of competencies on curricula. For example in the UK, there has been criticism of National Vocation Qualifications with respect to professional level qualifications (Parker, Hare & Gannon-Leary, 1999, p. 22). They note the concerns and criticisms voiced about confusing competency-based training with professional education. The latter is seen as capable of producing people who are capable of questioning current circumstances, analysing situations, and producing novel solutions.

Courses at university level in Australia have been undergoing restructuring under a variety of influences concerning both content and administration. These include:

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- Being subsumed within broader academic departments and required to offer more generic offerings to larger classes
 - Establishment of online delivery mechanisms
 - Changes in higher education funding mechanisms that require up-front fee payment for graduate courses
 - Necessary changes in curriculum to accommodate information and knowledge management and address audiences other than library-specific ones.

These issues have been considered with particular reference to addressing information utilisation (Bruce, 1999), and with respect to document and knowledge management within business information technology courses (Martin, 1999).

The objectives of the investigation reported here, were, taking account of competency explication, and factors affecting professional curriculum, to:

- Establish a picture of the library profession's expectations of graduates
- Rank skills (competencies) expected of professional graduates
- Provide indicators for curriculum development.

In doing this, a comparison is made with earlier published work from North America (Buttlar & du Mont, 1996).

Work carried out by Rehman (2000) is also taken into account. In this case, analysis was carried out to see if there was a significant difference between competencies accepted at undergraduate and postgraduate levels. Senior library managers (50 respondents) in the Gulf regions identified 48 higher level competencies (performance evaluation, policy development, designing databases, planning for automation) of a total of 70 - the remainder not being significantly different for either level, except for 'acquiring materials' that was favoured at the undergraduate level.

METHOD OF EVALUATION

The survey form was created by consolidating all described competencies (Arts Training Australia, 1995; Business Training Services Australia Ltd., 1997; Buttlar & du Mont, 1996) into a single document. The spreadsheets used for analyzing the data, also contain correlations between the terminology used in the different descriptive documents

The broad areas of categorisation are shown in Table 1.

Take in Table I

The survey form was modified after testing on a sample of information professionals and former graduates. It was then administered to a modified list of alumni who had graduated from QUT library and information studies courses. Incentives were provided for answering.

The mailing list for all graduates of library courses since their inception in 1974 numbered 750 students. The survey was mailed to this group. This was followed up by telephone communication based upon contact details provided to the University. This process reduced the survey population considerably based upon the following:

Take in Table II

RESULTS

The 113 responses were distributed among graduates as shown in Figure 1, which indicates that the majority of responses came from more recent graduates. Although the School has been graduating many more graduates in recent years, and a negative correspondence was expected between numbers of respondents and years since graduation, the large number of uncontactable alumni, also tended to eliminate earlier graduates from the population.

Take in Figure 1

The respondents were asked to indicate their main sectors of employment. Twenty-nine respondents reported multiple workplaces. These data are reflected Figure 2.

Take in Figure 2

The principal expectation of respondents was that they rate the various skills identified. A complete table showing the ranking for every identified skill is shown in **Appendix 1**. This appendix also shows the category from Table 1 to which each skill corresponds. Figure 3

extracts from the appendix, the ten most highly rated skills ranked by the frequency of ‘essential’ rating. The table in the appendix is arranged this way as well, but it also includes a comparison between this rating and a weighted rating that takes into account frequency of lesser ratings.

Of the top 10 items, only one skill, *Manage workload effectively*, would be affected if the weighted ranking were taken into account, moving from 6th to 9th on the table. However there would be much resequencing of lower ranked items in the table, if the weighted ranking were used.

Take in Figure 3

The ratings differ markedly from the ‘competency’ ratings reported by Buttler & Du Mont (1996, p.51).

Their rankings included *Collection Building* skills at positions 2,7, 8 and 10. The first such skill in our survey appeared 14th and the second, 29th (**Appendix 1**). Strong prioritisation in our survey was given to *Information Services* (7 in the first 10) and *Communication* (3 in the first 10) skills. Additional comments made by respondents with respect to the *Communication* category, emphasised the importance of dealing with difficult clients, and having good interpersonal skills (in some cases respondents emphasized the importance of these over operational skills). One respondent noted that recruitment was more about matching similar types of people rather than seeking particular skills.

The lowest ranked skills are depicted in Figure 4. Most of these are drawn from the *Information Systems* category.

Take in Figure 4

To enable further comparison with the work of Buttler & Du Mont, Table III shows highest ranked competencies according to the type of work experience that has been undertaken by graduates.

Employment types are as per those of Buttler & Du Mont, except that *School Library* is not shown. Although 9 respondents had experience in this area, the number is too small to make any useful distinction between rankings. It should be noted too that the course completed by the QUT graduates is not designed to prepare students for school library work.

Table III shows only the simple rankings based upon the percentage of those respondents ranking a skill as a percentage. In the complete skills listing in Appendix 1, a weighted column shows ranking taking into account responses that ranked a skill lower than essential. In this table, the Technical and Further Education (TAFE) and University respondents are combined on the basis of similarity of responses, as are the different types of special libraries. Different categories of non-library settings are also combined for this Table, which shows the highest ranked skills being drawn from just two categories, *Information Services* and *Communication* in all sectors.

take in Table III

There is a marked difference between these rankings and those of the earlier study, particularly in the Public Library sector where competencies in the *Collection Building and Management* category were ranked much higher.

There is marked similarity in the highly ranked skills between the different library sectors. Nevertheless, there are many areas of dissimilarity between sectors. For example *t-test* on difference of means between rankings given by those employed in University and Public library sectors, showed that for the *Information services* category, there was significant difference (> 90% confidence) in 8 of the 31 skills areas:

- Effectively resolve problems related to information access
- Appropriately disseminate information to user via current awareness
- Provide user education through bibliographic instruction
- Provide user education by large group presentations
- Develop websites for user instruction
- Identify the need for further programs or services
- Provide for the design and development of further programs or services according to need
- Contribute to the evaluation, revision and modification of a program or service

In every one of these cases, those who had been employed in a University environment gave the significantly higher rating.

A comparison of the *Management* category with its 42 identified skills showed 6 significant differences (confidence > 90%) between rankings given by the University and Public Library sectors. However, in each of these cases, those from the Public Library sector gave the significantly higher ranking, for:

- Effectively coordinate management of all library operations
- Manage a one-person library
- Allocate personnel and coordinate work groups based on changing information service needs
- Continually motivate staff to deliver quality performance and results
- Manage workplace planning and ergonomics
- Monitor program activity and performance

The *Management* category was also investigated to see if there were significant differences in ranking between new and experienced graduates. For these purposes new graduates were taken as those being less than or equal to 5 years since graduation, and the rest were recorded as experienced graduates.

Of the 42 identified skills, 15 were rated with significant difference (>90% confidence, of which 11 were different at >95% confidence). These were:

- Provide a vision and strategy for development of the library as a whole

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- Provide a vision and strategy for development of information services for the organisation as a whole
 - Manage a one-person library
 - Perform cost-benefit analysis and long-range financial planning for information services and programs
 - Design an effective budget plan for information services and programs
 - Manage expenditures of information services and programs to ensure spending falls within budget
 - Obtain financial resources by sponsorship, fundraising and other means consistent with organisation policies and guidelines
 - Recruit, interview and hire personnel
 - Allocate personnel and coordinate work groups based on changing information service needs
 - Provide initial training to new personnel or personnel starting in a new area
 - Continually evaluate training needs of personnel
 - Provide continual training to personnel in various aspects of information operations
 - Continually motivate staff to deliver quality performance and results
 - Manage workplace planning and ergonomics
 - Carry out risk analysis and disaster planning

In each one of these cases, experienced graduates ranked the skill higher than those who had more recently entered the workforce. It is not clear if the more experienced graduates see more need for education in these skills because they have come across a need for them in their

working environment, or because they genuinely think that they are commencing skills required by new graduates.

The relative importance given to the overall categories shown in Table 1 was compared by determining the mean value for skills rankings within each category. Figure 5 shows the overall result.

Take in Figure 5

In this table, a value of 1 would represent all skills in the category being ranked as essential by all respondents. Although many specific skills within the *Information Services* category led all other skills in figure 3, overall the *Communication* category showed the highest mean when all skills in each category were taken into account.

DISCUSSION

The results shown are examples of many different indicators that may now be drawn from the dataset in order to assist curriculum development. The dataset may continue to be utilised whenever desired specializations are being considered, in order to investigate the expectations of those who are in the workforce.

The population used for the sample was disappointingly small, because of the limitations of the QUT Alumni database, that were accentuated by a low response rate, probably contributed to by the demands of the questionnaire. Responses from more recent graduates predominated,

as more contact information from earlier graduates was often unusable. Nevertheless, noteworthy indicative information was gathered that contributes appreciably to curriculum development.

The survey instrument itself, is a detailed itemization of skills that brings together different disciplinary views on the same skills. As it was developed in consultation with educators in these areas, it is an instrument that they may also use to extend the dataset on a wider basis nationally, and it is hoped it will provide a catalyst for similar collaborative university endeavour. From this may be drawn pointers to difference in graduate expectations based upon gender, geographic location, year of graduation, working environment, school from which graduated, and academic qualification.

Course content for professional library courses in Australia continues to be strongly influenced by the Australian Library and Information Association. ALIA has for many years, set guidelines for course delivery and content (Australian Library and Information Association, 2000) that enable its Board of Education to make decisions about whether to recognise courses. It has also endeavoured to provide guidelines (Australian Library and Information Association 1998) that bridge the aspirations of course outcomes to those of employers.

Although these guidelines are couched in broad terms by ALIA, they continue to struggle with the convergence with other professions, such as that which is implied by the U.S. Special Libraries Association in a recent expression of the competencies required of its members (Special Libraries Association 1996). SLA expresses these as the paradigm shifts of: (a) the

transition from paper to electronic media as the dominant form of information storage and retrieval (including convergence of previously separate media, such as text, graphics, and sound, into multimedia resources); (b) the increasing demand for accountability, including a focus on customers, performance measurement, benchmarking and continuous improvement (all of this is taking place in an era when the financial resources available for providing library and information services are shrinking; and (c) new forms of work organization such as end-user computing, work teams, management 'delaying', job-sharing, telework, outsourcing, downsizing and re-engineering.

However, ALIA's most recent expression of content emphasizes generic knowledge, skills and attitudes shared by people in the library and information studies sectors with those in other sectors, including effective communication skills, relevant IT and information systems skills, management skills, ability to think critically and creatively, evaluation skills, appropriate information literacy skills, valuing of professional ethical standards, commitment to life-long learning, and effective team relationship skills.

ALIA's core knowledge and skills in summary, include: understanding of and skills in the broad context of the information environment; information needs analysis, resource identification, and utilisation; strategy and alliances for LIS development; implementation of resource management for LIS operations; information sources identification and implementation; information access through organization, preservation and retrieval; product and service marketing and delivery; and evaluation of effectiveness of services and products.

The accessible way in which these are now defined, means that skills may now be interpreted more liberally, and provide for preparation of graduates in more generic information management positions.

This analysis has elaborated upon the skills subsumed by the ALIA framework, and complemented these with skills from associated disciplines. The responses show that graduates have a particular appreciation for the generic skills of communication. Of the core knowledge, greatest emphasis is given to information services, followed by information organization. The specific skills information may be used to inform further curriculum development.

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APPENDIX 1 (Skill-category ranking)

This shows complete listing of skills for categories ranked by total number of responses that indicate the skill is essential. Weighted column shows ranking taking into account responses that ranked a skill lower than essential.

essential	(weighted)	Category	Skill
91	0.951	Information Services	Know how to use traditional and automated reference sources in locating required information
88	0.945	Information Services	Effectively assess user information needs
87	0.942	Information Services	Effectively search different databases to locate the information required
84	0.927	Information Services	Determine a search strategy that is consistent with available resources and is cost-effective in meeting user needs
79	0.914	Information Services	Perform an effective reference interview
77	0.898	Communication	Manage own work load effectively using proper time management skills and seeking assistance when necessary
76	0.912	Communication	Communicate effectively in written reports, proposals, procedural manuals, correspondences, etc.
76	0.912	Information Services	Provide direct user assistance in accessing information
73	0.905	Information Services	Navigate various computer networks to locate the information required
71	0.892	Communication	Take the initiative to continually develop own skills and knowledge
66	0.894	Communication	Effectively communicate using verbal and presentation skills
66	0.874	Information Services	Apply knowledge of bibliographic tools and information sources in all formats to determine origin of required references
63	0.861	Communication	Continually monitor and evaluate own work performance
59	0.847	Collection Building and Management	Be aware of materials in different formats, (e.g.: print, nonprint, digital, different language)
56	0.856	Communication	Present material verbally to small groups
55	0.830	Communication	Take the initiative to work through conflicts or problems that arise in group work
54	0.836	Information Services	Effectively resolve problems related to information access
53	0.825	Information Services	Provide user education by small group presentations
52	0.819	Communication	Communicate effectively using electronic facilities
51	0.810	Information Systems	Effectively operate information systems
50	0.819	Information Services	Identify and obtain electronic or physical materials from remote sources for user
49	0.819	Communication	Coordinate, supervise, assist and motivate personnel in a team effort or group work
47	0.799	Communication	Take the initiative to continually develop the skills and knowledge of group/team members
47	0.821	Information Organization	Appropriately apply classification procedures so that information is properly represented
47	0.814	Information Organization	Ensure catalogue and classification records are created and maintained in accordance with relevant organisation and industry standards
46	0.801	Information Organization	Evaluate and modify organisation of information

			based on user and staff needs
45	0.799	Information Services	Provide orientation to information services
45	0.774	Marketing & Public Relations	Apply ethics of information professionals
44	0.783	Collection Building and Management	Develop collection strategy
44	0.805	Information Organization	Access relevant hard copy or electronic catalogue records for update
43	0.810	Information Organization	Ensure that cataloguing procedures meet organisation needs and are consistent with industry standards
43	0.810	Information Organization	Ensure that classification procedures meet organisation needs and are consistent with industry standards
40	0.752	Collection Building and Management	Evaluate materials for collection based on appropriate organisation standards and guidelines
40	0.765	Information Services	Provide reader guidance
39	0.757	Collection Building and Management	Evaluate and negotiate access to remote digital services
39	0.799	Information Organization	Appropriately apply cataloguing and registration procedures to a variety of print and non-print materials
38	0.783	Information Organization	Add new catalogue or class headings in a way consistent with industry practice or in a way that is systematic if no precedent exists
38	0.746	Information Systems	Evaluate the effectiveness of current information systems in meeting user and staff needs
38	0.723	Management (general, financial, policy.....)	Provide a vision and strategy for development of the library as a whole
38	0.772	Management (general, financial, policy.....)	Establish procedures for library services (procedures for circulation; selection, acquisition, organisation and maintenance of library materials)
37	0.772	Collection Building and Management	Select materials according to subject specialisation
37	0.752	Communication	Effectively use presentation software to support presentations
37	0.690	Information Services	Process lending transactions according to organisation's procedures and particular circumstance
37	0.741	Management (general, financial, policy.....)	Develop a library policy with clearly set objectives
37	0.746	Management (general, financial, policy.....)	Manage a one-person library
37	0.710	Management (general, financial, policy.....)	Continually motivate staff to deliver quality performance and results
36	0.712	Information Services	Provide user education through bibliographic instruction
36	0.770	Information Systems	Assist and train others in operating information systems
36	0.739	Marketing & Public Relations	Promote services and programs and develop public awareness
35	0.774	Information Organization	Analyse materials according to existing classification system and according to organisation procedures
35	0.772	Information Services	Appropriately disseminate information to user via current awareness
35	0.730	Information Services	Provide user education by large group presentations
35	0.695	Management (general, financial, policy.....)	Effectively coordinate management of all library operations

34	0.772	Communication	Present material verbally to large groups
34	0.698	Management (general, financial, policy.....)	Impart ethics of information professionals
33	0.750	Collection Building and Management	Evaluate and negotiate subscriptions to digital materials
33	0.723	Information Organization	Construct and modify an online catalog
32	0.768	Collection Building and Management	Monitor collection use
31	0.754	Information Services	Respond to requests from other organisations for electronic or physical information materials
31	0.715	Information Systems	Identify the requirements of information systems based on user needs and technological availability and feasibility
31	0.717	Information Systems	Provide effective resolution of minor information system bugs or problems and appropriately refer major system problems
30	0.735	Information Organization	Appropriately apply indexing and abstracting procedures to a variety of print and non-print materials
30	0.728	Information Organization	Prepare keyword, subject, and other coordinate indexes
30	0.739	Information Services	Contribute to the evaluation, revision and modification of a program or service
29	0.759	Information Organization	Analyse materials according to existing cataloguing records and according to organisation procedures
29	0.692	Information Services	Provide user education through computer assisted instruction services (CAI services)
29	0.710	Information Services	Provide for the design and development of further programs or services according to need
29	0.730	Information Services	Promote and market a program or service to contribute to public awareness
29	0.684	Management (general, financial, policy.....)	Provide a vision and strategy for development of information services for the organisation as a whole
29	0.666	Management (general, financial, policy.....)	Recruit, interview and hire personnel
29	0.710	Management (general, financial, policy.....)	Provide initial training to new personnel or personnel starting in a new area
29	0.717	Management (general, financial, policy.....)	Continually foster relationships and communicate effectively with professional associations
29	0.735	Management (general, financial, policy.....)	Manage an information collection
29	0.746	Management (general, financial, policy.....)	Manage user education
28	0.715	Collection Building and Management	Review materials available for acquisition or collection
28	0.715	Information Services	Identify the need for further programs or services
28	0.675	Information Systems	Develop and maintain/update procedures and documentation important to the efficient operation of information systems
28	0.675	Management (general, financial, policy.....)	Design an effective budget plan for information services and programs
27	0.704	Information Services	Develop websites for user instruction
27	0.715	Management (general, financial, policy.....)	Manage information systems or services
27	0.701	Management (general, financial, policy.....)	Manage expenditures of information services and programs to ensure spending falls within budget

27	0.696	Marketing & Public Relations	Develop strategy to meet these service and program needs
27	0.718	Marketing & Public Relations	Foster relationships and contacts outside the organisation that are important to the organisation's objectives and general development
27	0.694	Research	Produce literature review
26	0.708	Collection Building and Management	Review procedures for acquisition based on organisation policy and cost effectiveness
26	0.681	Marketing & Public Relations	Identify and evaluate service and program needs from results of market research
25	0.739	Collection Building and Management	Evaluate and negotiate subscriptions to print materials
25	0.688	Information Services	Manage all of the above activities in a program or service and be responsible for long-range planning of one or more services/programs
25	0.664	Research	Select appropriate research techniques
24	0.670	Facilities & Equipment	Monitor and evaluate the facility for safety concerns
24	0.670	Information Systems	Contribute to the updating and development of existing information systems so that accessibility of information is optimised
24	0.650	Management (general, financial, policy.....)	Allocate personnel and coordinate work groups based on changing information service needs
24	0.684	Management (general, financial, policy.....)	Continually foster relationships and communicate effectively with governing bodies, agencies
23	0.673	Management (general, financial, policy.....)	Continually evaluate training needs of personnel
23	0.664	Marketing & Public Relations	Create promotional products
22	0.664	Information Organization	Develop information architecture for websites
22	0.639	Management (general, financial, policy.....)	Develop an information policy for the organisation as a whole
22	0.679	Management (general, financial, policy.....)	Establish procedures for information and knowledge management (information audits, data warehousing, etc)
22	0.670	Management (general, financial, policy.....)	Provide continual training to personnel in various aspects of information operations
21	0.553	Communication	Provide expert evidence
21	0.648	Facilities & Equipment	Ensure staff and user facilities and equipment are fully functional
21	0.604	Information Systems	Provide maintenance for existing information systems so that systems achieve optimum efficiency
21	0.631	Information Systems	Provide for the design of new information systems so that user and staff needs are met
21	0.670	Marketing & Public Relations	Design and conduct market research to determine service and program needs
20	0.626	Collection Building and Management	Select materials according to appropriate principles of intellectual freedom
20	0.664	Collection Building and Management	Carry out collection deselection or disposal
20	0.606	Management (general, financial, policy.....)	Monitor program activity and performance
20	0.631	Management (general, financial, policy.....)	Propose, develop, implement and evaluate projects pertaining to information programs or services and facilities

19	0.675	Collection Building and Management	Identify materials to be stored or discarded
19	0.624	Collection Building and Management	Apply collection management software for physical organisation
19	0.606	Information Services	Carry out environmental scanning (or business intelligence) based on organisation's objectives
19	0.644	Information Systems	Apply web page authoring software
19	0.610	Research	Collect, analyse and evaluate information for research (case studies, surveys, focus groups...)
19	0.599	Research	Report on, publish findings of research
18	0.666	Collection Building and Management	Determine acquisition details and order materials
18	0.633	Facilities & Equipment	Monitor and evaluate facility supplies and use of resources
18	0.608	Facilities & Equipment	Coordinate facility maintenance and repairs to ensure a safe environment
18	0.580	Information Services	Interpret results of environmental scanning for organisation
18	0.600	Management (general, financial, policy.....)	Perform cost-benefit analysis and long-range financial planning for information services and programs
18	0.666	Management (general, financial, policy.....)	Continually assess, apply and inform staff of legislation pertaining to information issues
18	0.586	Management (general, financial, policy.....)	Carry out risk analysis and disaster planning
17	0.586	Management (general, financial, policy.....)	Effectively coordinate information management for the organisation as a whole
17	0.610	Research	Design a research project
16	0.619	Collection Building and Management	Prioritise orders for materials and arrange appropriate method of delivery or access to ensure timely receipt of materials
16	0.500	Collection Building and Management	Check materials received against invoice and order details
16	0.582	Collection Building and Management	Establish principles for ownership and custody of materials
16	0.615	Communication	Maintain electronic lists using a list server
16	0.584	Facilities & Equipment	Order and replace supplies where necessary and according to organisation's objectives and procedures
16	0.642	Facilities & Equipment	Provide input on facility development
16	0.593	Management (general, financial, policy.....)	Provide a vision and strategy for development of recordkeeping as a whole
16	0.565	Management (general, financial, policy.....)	Develop a recordkeeping policy for the organisation as a whole
16	0.597	Management (general, financial, policy.....)	Establish procedures for recordkeeping
16	0.626	Management (general, financial, policy.....)	Continually assess, apply and inform staff of standards
15	0.626	Collection Building and Management	Review proposals for acquisition
15	0.619	Facilities & Equipment	Evaluate computer hardware
15	0.571	Facilities & Equipment	Select, install and monitor personal computer
15	0.582	Facilities & Equipment	Implement security procedures and resolve any security breaches
15	0.580	Information Systems	Design and create spreadsheet applications

15	0.526	Management (general, financial, policy.....)	Manage a research program
15	0.575	Management (general, financial, policy.....)	Provide information consultancy service
14	0.608	Collection Building and Management	Provide for the preservation, repair and maintenance of collection
14	0.611	Information Organization	Create metadata for websites
14	0.615	Management (general, financial, policy.....)	Manage computer hardware and other technical resources
14	0.600	Management (general, financial, policy.....)	Carry out information, knowledge and record audits
14	0.624	Management (general, financial, policy.....)	Monitor compliance with standards
13	0.491	Collection Building and Management	Evaluate materials received for damage or unsuitable condition
13	0.515	Collection Building and Management	Process and record order forms and invoices or other paperwork consistent with organisation acquisition procedures
13	0.604	Collection Building and Management	Coordinate storage and display of the collection
13	0.639	Information Organization	Construct and maintain authority files
13	0.593	Information Systems	Design and create database applications
13	0.577	Management (general, financial, policy.....)	Manage physical resources
12	0.471	Facilities & Equipment	Select, install and monitor server
12	0.462	Information Services	Process routing of documents
12	0.558	Information Systems	Use multimedia authoring software for creating promotional and educational materials
12	0.529	Management (general, financial, policy.....)	Obtain financial resources by sponsorship, fundraising and other means consistent with organisation policies and guidelines
12	0.595	Management (general, financial, policy.....)	Manage workplace planning and ergonomics
12	0.543	Research	Manage various projects in a research program
11	0.509	Collection Building and Management	Make appropriate claims to suppliers for missing, damaged or incorrect materials
11	0.485	Collection Building and Management	Sort and arrange materials for cataloguing and further processing
11	0.511	Information Services	Provide specialised consulting
11	0.555	Management (general, financial, policy.....)	Effectively coordinate recordkeeping operations
10	0.412	Collection Building and Management	Label new materials and apply protective and security measures
10	0.511	Information Systems	Apply web scripting software for page and metadata creation
10	0.550	Research	Apply descriptive statistical techniques
9	0.613	Collection Building and Management	Implement procedures to identify loss or damage to collection
9	0.502	Information Systems	Use systems analysis techniques to describe the relationship between tasks, functions
9	0.498	Information Systems	Coordinate records creation and capture
8	0.513	Collection Building and Management	Carry out records specification and appraisal
8	0.513	Information Systems	Define databases including input and output requirements

8	0.482	Information Systems	Design and create personal referencing software applications
7	0.442	Facilities & Equipment	Select, install and monitor communications
7	0.566	Facilities & Equipment	Evaluate audio-visual equipment
7	0.438	Information Organization	Create and develop classification scheme
6	0.533	Facilities & Equipment	Determine storage requirements
6	0.374	Information Systems	Select and apply digitisation procedures
5	0.535	Facilities & Equipment	Select, operate and maintain audio-visual equipment
5	0.584	Information Organization	Construct and maintain thesaurus
5	0.442	Information Systems	Use modeling techniques to explain the relationship between data for databases
5	0.376	Information Systems	Coordinate digitisation projects
4	0.350	Facilities & Equipment	Select, install and monitor mainframe
4	0.405	Information Systems	Create macro instructions for applications programs
4	0.418	Management (general, financial, policy.....)	Manage building design
3	0.272	Information Systems	Develop software (program) using low level languages
2	0.265	Information Systems	Develop software (program) using high level languages
2	0.310	Information Systems	Design and create statistical software applications
1	0.319	Information Services	Participate in local access cable television programming and services
1	0.350	Information Services	Provide for the design and production of audio-visual materials
0	0.405	Information Organization	Prepare back-of-book indexes
0	0.416	Research	Apply inferential statistical techniques

<u>Category</u>	<u>Identified skills</u>
Collection building and management	28
Communication	14
Facilities & equipment	15
Information organisation	19
Information services	31
Information systems	25
Management	42
Marketing	7
Research	8
	<u>189</u>

Table I: Broad categories for survey

750	Potential population from mailing list
Less:	
67	Forms returned because of out-of-date addressing
318	Potential respondents uncontactable based upon 56% sample of follow-up calls.
88	Respondents (based upon 56% sample) not employed in a related field.
- 473	Total not usable from mailing list
277	Actual survey population
113 (41%)	Valid responses

Table II: valid responses

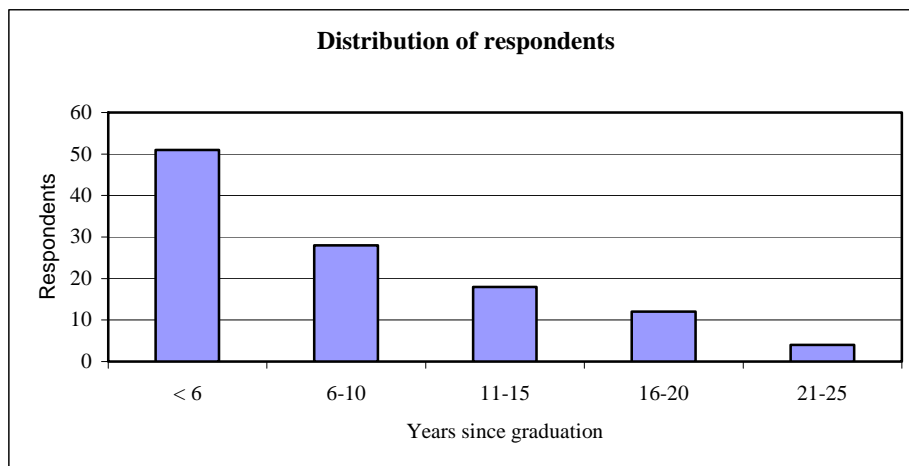


Figure 1: Distribution of respondents

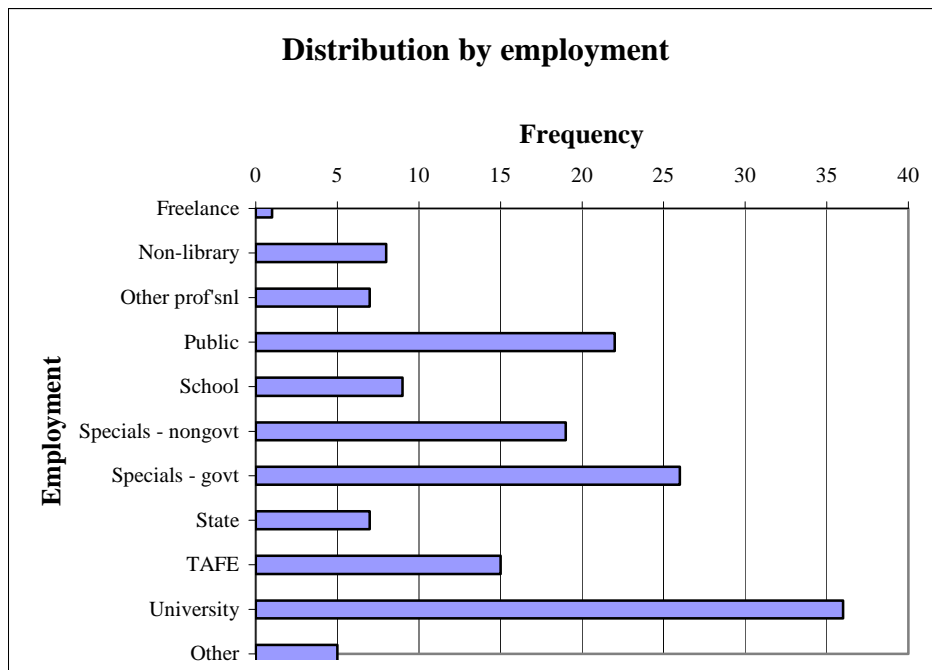


Figure 2: Employment distribution

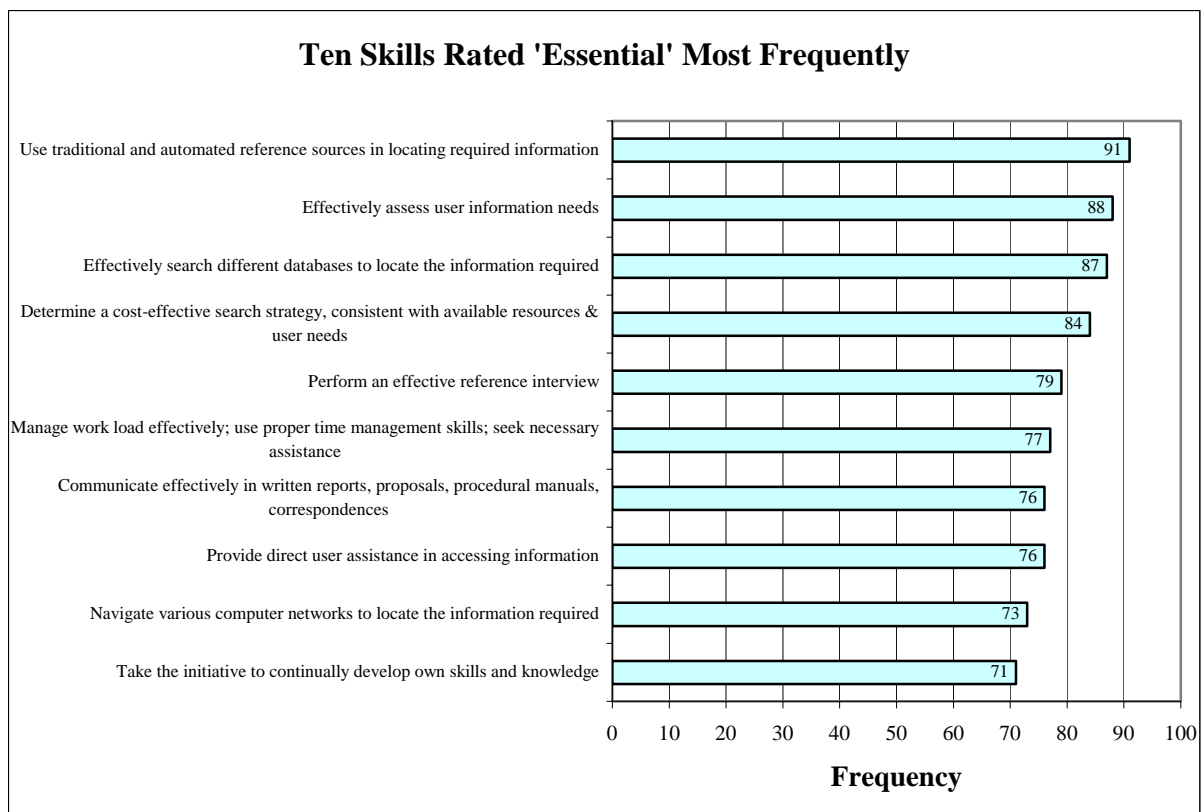


Figure 3: Ten highest ranked skills

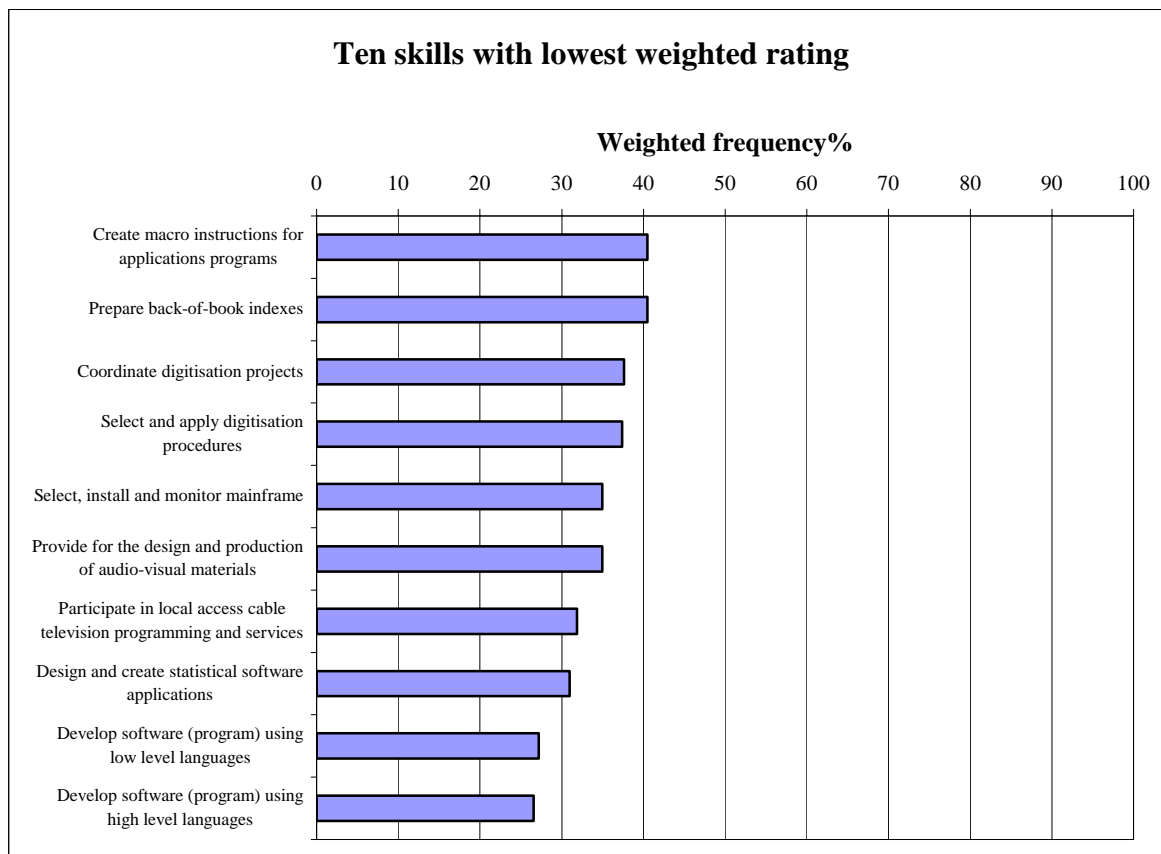


Figure 4: Ten lowest ranked skills

Skill	Category	%essential
Public (n=22)		
Know how to use traditional and automated reference sources in locating required information	Info serv	86.36
Determine a search strategy that is consistent with available resources and is cost-effective in meeting user needs	Info serv	86.36
Effectively search different databases to locate the information required	Info serv	86.36
Apply knowledge of bibliographic tools and information sources in all formats to determine origin of required references	Info serv	81.82
Provide direct user assistance in accessing information	Info serv	77.27
Academic (incl Uni + TAFE) (n=51)		
Provide direct user assistance in accessing information	Info serv	88.24
Effectively search different databases to locate the information required	Info serv	82.35
Know how to use traditional and automated reference sources in locating required information	Info serv	82.35
Apply knowledge of bibliographic tools and information sources in all formats to determine origin of required references	Info serv	80.39
Determine a search strategy that is consistent with available resources and is cost-effective in meeting user needs	Info serv	80.00
Identify and obtain electronic or physical materials from remote sources for user	Info serv	80.00
Special (govt and non-govt combined) (n=45)		
Know how to use traditional and automated reference sources in locating required information	Info serv	75.56
Provide direct user assistance in accessing information	Info serv	75.56
Effectively search different databases to locate the information required	Info serv	71.11
Take the initiative to continually develop own skills and knowledge	Comm	71.11
Coordinate, supervise, assist and motivate personnel in a team effort or group work	Comm	68.89
Non-library settings (n=21)		
Effectively search different databases to locate the information required	Info serv	85.71
Apply knowledge of bibliographic tools and information sources in all formats to determine origin of required references	Info serv	76.19
Provide direct user assistance in accessing information	Info serv	76.19
Present material verbally to small groups	Comm	76.19
Effectively resolve problems related to information access	Info serv	76.19
Identify and obtain electronic or physical materials from remote sources for user	Info serv	66.67

Table III: Five most highly ranked skills by employment experience

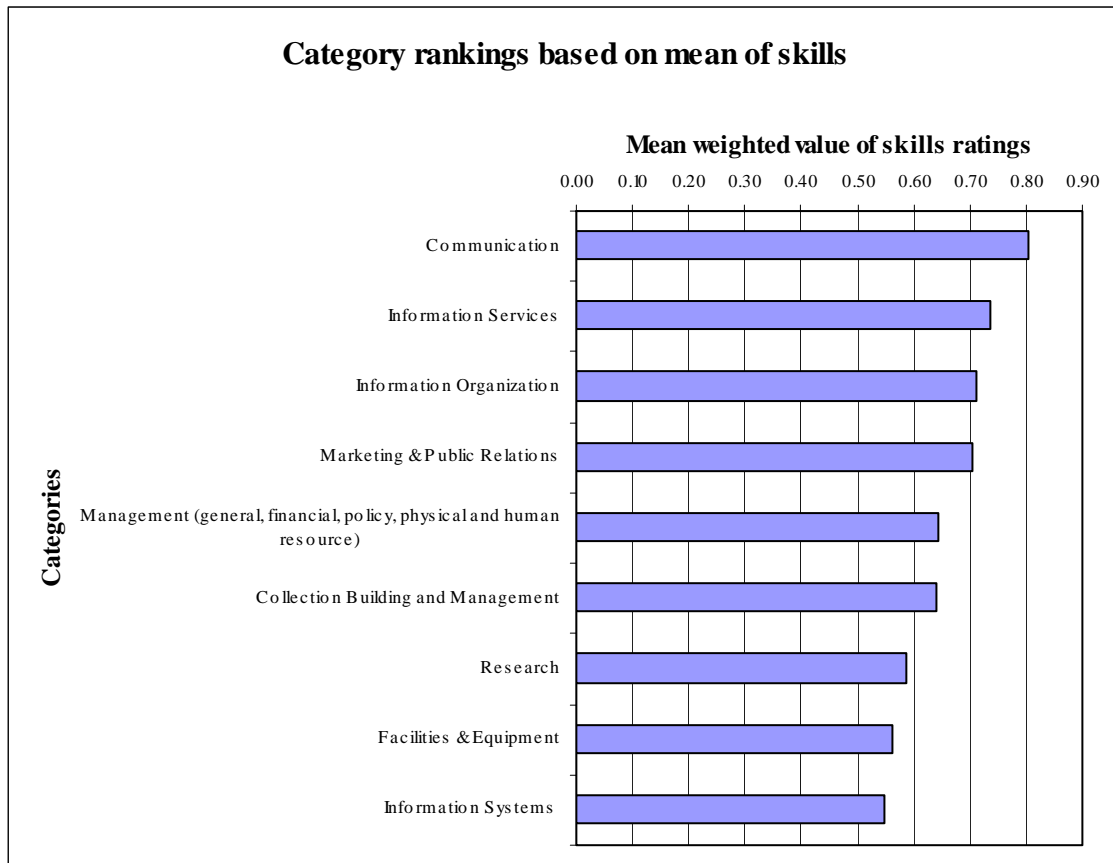


Figure 5: Rankings for categories based upon mean value of skills within category